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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,634	06/27/2003	Ioan Sauciuc	42P16896	8366

7590 10/31/2007

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EXAMINER	
DUONG, THO V	
ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
10/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,634	SAUCIUC ET AL.	
	Examiner	Art Unit	
	Tho v. Duong	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed 8/17/07 is acknowledged. Claims 18-28 are pending.

Response to Arguments

Applicant's arguments filed 8/17/07have been fully considered but they are not persuasive. Applicant's argument that claim 18 is allowable so claim 20 is allowable as well, has been very carefully considered but is not found to be persuasive because claim 18 is not allowable and has been rejected as follows. Regarding applicant's argument that the adhesive material (32) of Herbst is merely used for securing the apparatus to the integrated circuit and not use of "receiving the heat in the heat sink upon changing of the polarity to melt the TIM up to an acceptable melt level to be applied to or removed from the heat sink, has also been carefully considered but not found to be persuasive. In response to applicant's argument about the use of the thermal interface material, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art apparatus satisfying the claimed structure limitation. Ex parte Masham, 2 USPQ2d 1647 (1987). Herbst discloses that the adhesive material (32) is a heat conductive adhesive so it is capable of receiving heat and melting to an acceptable level on its surface upon receiving a certain amount of heat and since the heat conductive adhesive (32) is sandwiched between the heat sink and the IC device, it is inherently to read on the limitation of "the TIM including a thermal conductive material to fill a thermal gap to dissipate the heat away from the IC device". Similarly, Chu discloses that the solder (17) is a heat conductive material and is capable of receiving heat and melting to an acceptable level upon receiving a certain amount of

heat and since the solder (17) is sandwiched between the heat sink and the IC device, it is inherently to read on the limitation of "the TIM including a thermal conductive material to fill a thermal gap to dissipate the heat away from the IC device". Regarding Richman reference, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, the examiner has relied on Richman to disclose the working principles of the thermoelectric, which is capable of heating or chilling upon changing of its polarity. Herbst or Chu's apparatus discloses a thermoelectric system that has a thermal interface material of adhesive or soldering material in thermal contact with the thermoelectric, wherein the thermal adhesive and soldering material are capable of being melted to an acceptable level upon heating. By employing the teaching of Richman in the thermoelectric system of Herbst or Chu, the combination device is capable of melting (heating) or un-melting (chilling) the adhesive or soldering material up to an acceptable level upon changing to polarity of the thermoelectric. Furthermore, regarding the limitation of "to melt the TIM up to an acceptable melt level to be applied to or removed from the heat sink", it has been that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation . Ex parte Masham 2 USPQ2d 1647 (1987). In this case, the claimed apparatus being intended to melt the TIM to be applied or removed from the heat sink does not differentiate the claimed apparatus from the prior art of Herbst or Chu and its incorporated material of Richman, which satisfy all of the claimed structural limitation.

Furthermore, as a matter of working principle of the thermoelectric device (TEC), if the polarity of the TEC is reversed, heat transfer direction will also be reversed to transfer heat back to the thermal interface material or the heat source. Since the thermal interface material is adhesive material such as adhesive tape or soldering, which is capable of being melted to an acceptable level upon heating, the apparatus of Herbs or Chu is capable of melting the adhesive material (32,17) up to an acceptable melt level upon changing the polarity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 18-28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Herbst, II (US 5,457,342). Herbst discloses (figure 4) a system comprising a heat storage medium (heat spreader 12); an integrated circuit such as a CPU (13) coupled to the storage medium (12); a heat sink (24) coupled with the IC (13), the heat sink comprising a thermoelectric (18) module having a polarity; and a thermal interface material (32) such as an adhesive material filled in a thermal gap between the heat sink and the IC device. Herbst does not explicitly disclose how the thermoelectric works but Herbs has incorporated reference Richman (4,685,081) to disclose the principles of a Peltier effect cooling module (thermoelectric). The reference to Richman discloses (column 4, lines 6-13) that the thermoelectric (30) is capable of reversing the direction of current flowing through the

thermoelectric (reversing the polarity) to heat or chill the device (21) to maintain the device within its recommended temperature range. Regarding claims 20 and 25, the method of forming " the application device...an epoxy dispenser machine and a vacuum suction cup" are not germane to the issue of patentability of the product itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this instant case, the product in the product-by-process claim is the same as or obvious from the product of the prior art, the claim is unpatentable even though the TIM was applied by a different device such as by hand. Regarding the limitation of "to melt the TIM up to an acceptable melt level to be applied or removed from the heat sink", it has been that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation . Ex parte Masham 2 USPQ2d 1647 (1987). In this case, the claimed apparatus being intended to melt the TIM does not differentiate the claimed apparatus from the prior art of Herbst and its incorporated material of Richman, which satisfy all of the claimed structural limitation. Furthermore, as a matter of working principle of the thermoelectric device (TEC), if the polarity of the TEC is reversed, heat transfer direction will also be reversed to transfer heat back to the thermal interface material or the heat source. Since the thermal interface material is adhesive material such as adhesive tape, which is capable of being soften or melt to an acceptable level upon heating, the apparatus of

Herbs is capable of melting the adhesive material (32) up to an acceptable melt level upon changing the polarity.

Claims 18-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al. (US 6,424,533) in view of Richman (4,685,081). Chu discloses (figures 1 and 3) a system comprising a heat storage medium (heat spreader 28); an integrated circuit such as a chip (14) coupled to the storage medium (12); a heat sink (20) coupled with the chip (14), the heat sink comprising a thermoelectric (30) module having a polarity; and a thermal interface material (17) such as solder or oil filled in a thermal gap between the heat sink and the chip. Chu does not disclose that the thermoelectric device will change its heat flow direction upon the changing of its polarity and to melt the thermal interface material (17). Richman (4,685,081) discloses the principles of a Peltier effect cooling module (thermoelectric). The reference to Richman discloses (column 4, lines 6-13) that the thermoelectric (30) is capable of reversing the direction of current flowing through the thermoelectric (reversing the polarity) to heat or chill the device (21) for a purpose of maintaining the device within its recommended temperature range. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Richman's teaching in Chu's device for a purpose of maintaining the device within its recommended temperature range. Regarding the limitation of "to melt the TIM up to an acceptable melt level to be applied or removed from the heat sink", it has been that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation . Ex parte Masham 2 USPQ2d 1647 (1987). In this case, the claimed apparatus being

intended to melt the TIM does not differentiate the claimed apparatus from the combination device of Chu and Richman, which satisfy all of the claimed structural limitation. Furthermore, as a matter of working principle of the thermoelectric device (TEC), if the polarity of the TEC is reversed, heat transfer direction will also be reversed to transfer heat back to the thermal interface material or the heat source. Since the thermal interface material is solder or oil, which is capable of being soften or melt upon heating, the apparatus of Chu is capable of melting the adhesive material (17) up to an acceptable melt level upon changing the polarity.

Regarding claims 20 and 25, the method of forming " the application device...an epoxy dispenser machine and a vacuum suction cup" are not germane to the issue of patentability of the product itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this instant case, the product in the product-by-process claim is the same as or obvious from the product of the prior art, the claim is unpatentable even though the TIM was applied by a different device such as by hand.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tho v Duong
Primary Examiner
Art Unit 3744

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October 29, 2007